



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

|   |               |                      |                     |                  |
|---|---------------|----------------------|---------------------|------------------|
| APPLICATION NO.   | FILING DATE   | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/809,229  | 03/25/2004    | Kishore Karighattam  | H1311               | 6706             |
| 29393   | 7590          | 09/19/2008           | EXAMINER            |                  |
| ESCHWEILER & ASSOCIATES, LLC<br>NATIONAL CITY BANK BUILDING<br>629 EUCLID AVE., SUITE 1000<br>CLEVELAND, OH 44114 |               |                      | TRUONG, LECHI       |                  |
| ART UNIT  | PAPER NUMBER  |                      |                     |                  |
|   |               |                      | 2194                |                  |
| NOTIFICATION DATE   | DELIVERY MODE |                      |                     |                  |
| 09/19/2008  | ELECTRONIC    |                      |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Docketing@eschweilerlaw.com

|                              |                                      |   |
|------------------------------|--------------------------------------|---|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/809,229 | <b>Applicant(s)</b><br>KARIGHATTAM ET AL. |
|                              | <b>Examiner</b><br>LECHI TRUONG      | <b>Art Unit</b><br>2194                   |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 25 March 2004.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-25 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-25 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 25 March 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1668)  
Paper No(s)/Mail Date 09/30/2005, 03/25/2004

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1-42 are presented for the examination.

#### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-13 are rejected under 35 U.S.C. 101 because they are directed to non-statutory subject matter.
3. Claim 1 is non-statutory because it is software *per se* embodied in a manner so as to be executable as the only hardware.
4. Claim 1 defines "System" in the preamble and the body of the claim recites " an operating system dependent module", " an operating system independent module" , " media independent module", " a media dependent module" . An operating system dependent module, an operating system independent module, media independent module, a media dependent module appear to be software modules . Therefore, claim 1 is non-statutory because it recites a system claim that comprises software *per se* embodiments.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made

to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1- 4, 8, 9 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson (US 7032227 B2) in view of Black (US 5684962 A).

**As to claim 1,** Wilkinson teaches the invention substantially as claimed including: A layered network device driver system (col 5,ln 60-65), an operating system dependent module(an operating system running platform dependent code, col 3, ln 64-67), data( data, col 3, ln 64-67), an operating system dependent module operable to communicate in an operating system dependent format to initiate sending of transmit data and to provide received data( col 3, ln 64-67 to col 4, ln 1-6);

an operating independent module(platform independent code, col 2, ln 50-55), an operating system independent module that communicates with the operating system dependent module and performs processing on the transmit data and the received data( col 2, ln 50-55/ col 3, ln 63-67 to col 4, ln 1-6);

a media ( col 12, ln 7-10/ col 6, ln 47-48), independent module( driver drivers, col 5, ln 60-65), that places the transmit data , and obtains the received data ( col 2, ln 51-57/ col 3, ln 62-67/ col 4, ln 1-5/ Fig. 1) , dependent module( theming 20, col 6, ln 10-12/ Fig. 1), dependent module configured to communicate with media independent module ( col 3, ln 63-67 and col 4, ln 1-6), one or more type of devices(device types, e.g., PDAs, cell phones, etc , col 6, ln 45-50), and with one or more types of network devices and control the one or more types of network devices to send the transmit data (col 6, ln 45-55).

Wilkinson does not teach the one or more transmit descriptor rings and to receive the received data into the one or more receive descriptor rings in one or more transmit descriptor rings. However, Black teaches the one or more transmit descriptor rings and to receive the received data into the one or more receive descriptor rings (communicating between two processors, one embodiment of the invention provides a single queue or descriptor ring which references several context control blocks, each of which corresponds to a different logical or physical data path in a communications system. An entry in the descriptor ring references an appropriate context control block and a source packet representing a packet location prior to processing, col 1, ln 39-50).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Wilkinson with Black to incorporate the feature of descriptor rings because this provides a communications technique that reduces the resources required.

**As to claim 2**, Wilkinson teaches dependent module is operable to configure and initialize one or more registers of a network device (col 8, ln 15-25).

**As to claim 3**, Wilkinson teaches dependent module is operable to verify that optional parameters comply with capabilities of a network device (col 19, ln 64-67 to col 21, ln 1-5).

**As to claim 4**, Wilkinson teaches the operating system dependent module is operable to receive a packet to be transmitted from the operating system in an operating system specific format (col 19, ln 64-67 to col 21, ln 1-5).

**As to claim 8,** Black teaches the media independent module is operable to access on or more data buffers of a packet associated with a received frame along with optional information (col 14, ln 30-36).

**As to claim 9,** Black teaches the module is operable to analyze the packet and optional information for status (col 10, ln 30-35).

**As to claim 12,** Wilkinson teaches transferring packets between the operating system and the operating system dependent module (col 3, ln 64-67 to col 4, ln 1-6), Black teaches a message block format for transferring packets (col 1, ln 41-46), a mandatory parameter that includes one or more virtual pointers to one or more data buffers; and an optional parameter pointer that points to one or more optional parameters (col 2, ln 22-30).

**As to claim 13,** Black teaches optional parameters respectively include a type, a size, and one or more parameter (col 5, ln 25-37).

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson (US 7032227 B2) in view of Black (US 5684962 A), as applied to claim 1 above, in view of Simmon (US 5867688 A).

**As to claim 5,** Wilkinson teaches operating system dependent module is further operable to convert the packet (col 19, ln 64-67 to col 21, ln 1-5).

Wilkinson and Black do not teach convert the packet into an array based data structure, wherein the data structure comprises virtual pointers to one or more data buffers. However, Simmon teaches converting packets from the format stored in the temporary buffer 104 to

message lists, col 14, ln 25-30/Each message list include the data structure, col 14, ln 63-67/The message list includes a pointer to the corresponding data string in the message buffer 110, col 14, ln 54-58).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Wilkinson and Black with Simmon to incorporate the feature of convert the packet into an array based data structure, wherein the data structure because this improves the packet transmission between the computers.

7. Claims 6, 7, 20-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson (US 7032227 B2) in view of Black (US 5684962 A), as applied to claim 1 above, in view of Simmon (US 5867688 A) and further in view of Ohno (US 6892261 B2).

**As to claim 6**, Wilkinson, Black, and Simmon do not the operating system independent module is operable to convert the virtual pointers of the data structure into physical pointers. However, Ohno teaches the operating system independent module is operable to convert the virtual pointers of the data structure into physical pointers (each of said first and second operating systems include a conversion table used by said digital arithmetic processor for converting a virtual memory address to a physical address, col 11, ln 25-30/ OS-A and OS-B are independent logical address spaces corresponding to the independent page tables of the individual OS's, col 6, ln 5-10).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Wilkinson, Black, Simmon with Ohno to incorporate the feature of convert the virtual pointers of the data structure into physical pointers because this provides a higher real-time performance and reliability which can be established with a single CPU architecture.

**As to claim 7**, Black teaches the media independent module is operable to attach the one or more data buffers to a transmit descriptor, wherein the transmit descriptor is of the one or more transmit descriptor rings (col 7, ln 27-35).

**As to claim 20**, it is an apparatus claim of claims 1, 3, 7; therefore, it is rejected for the same reasons as claims 1, 3, 7 above. In additional, Black teaches freeing the one or more data buffers for other use (col 7, ln 49-55).

**As to claim 21**, Wilkinson teaches the packet is obtained from the operating system by an operating system dependent module in an operating system specific format (col 4, ln 1-6).

**As to claim 22**, Simmon teaches coalescing the one or more data buffers into contiguous memory space (col 14, ln 27-31).

**As to claim 23**, Simmon teaches attaching the freed data buffers to a send queue for packets awaiting transmission (col 18, ln 51-60).

**As to claim 24**, Black teaches attaching optional information to the transmit descriptor by an operating system independent module (col 14, ln 30-36).

**As to claim 25**, Wilkinson teaches the optional information includes a virtual local area network type (col 6, ln 45-55).

8. Claims 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson (US 7032227 B2) in view of Black (US 5684962 A), as applied to claim 1 above, and further in view of Nelson (US 6882654 B1).

**As to claim 10,** Wilkinson and Black do not teach the operating system dependent module analyzes the packet for errors. However, Nelson teaches the operating system dependent module analyzes the packet for errors (Layer 7 corresponds to the Open System Interconnect (OSI) "Application Layer." The Layer 7 Switch may be configured to perform a number of packet analysis procedures on received packet data, col 1, ln 10-16/ In order to analyze the Layer 7 data, received packet data is also rearranged into its proper order and any duplicates and errors are removed, col 1, ln 20-25).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Wilkinson, Black with Nelson to incorporate the feature of the operating system dependent module analyzes the packet for errors because this provides more efficient ways to analyze and buffer packet data.

**As to claim 11,** Wilkinson teaches the operating system dependent module is further operable to provide the packet to the operating system (col 4, ln 1-6).

9. Claims 14, 15, 16, 18, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simmon (US 5867688 A) in view of Nelson (US 6882654 B1) and further in view of McKeeth (US 6260140 B1).

**As to claim 14,** Simmon teaches obtaining a received packet and generating an array based data structure from the received packet that includes one or more pointers to one or buffers (converting packets from the format stored in the temporary buffer 104 to message lists, col 14, In 25-30/Each message list include the data structure, col 14, In 63-67/The message list includes a pointer to the corresponding data string in the message buffer 110, col 14, In 54-58).

Simmon does not teach analyzing status information of the packet and duplicating the packet; causing the one or more data buffers to be freed; analyzing the duplicated packet for errors. However, Nelson teaches analyzing status information of the packet and duplicating the packet, analyzing the duplicated packet for errors; (In order to analyze the Layer 7 data, received packet data is also rearranged into its proper order and any duplicates and errors are removed, col 1, In 23-25), causing the one or more data buffers to be freed (the buffer are free, col 2, In 14-16).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Simmon with Nelson to incorporate the feature of analyzing status information of the packet and duplicating the packet; causing the one or more data buffers to be freed; analyzing the duplicated packet for errors because this provides more efficient ways to analyze and buffer packet data.

Simmon and Nelson do not teach passing the duplicated packet to an operating system for further processing. However, McKeith teaches passing the duplicated packet to an operating system for further processing (Once the data file changes are modified for OS #1, they are copied into the appropriate OS #1, col 5, In 50-53).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Simmon and Nelson with McKeeth to incorporate the feature of passing the duplicated packet to an operating system for further processing because this automatically integrate the settings and preferences of multiple operating systems installed in an OS multi boot environment.

**As to claim 15**, Simmon teaches attaching the one or more freed data buffers to an adapter queue for incoming received frames (col 18, ln 51-60).

**As to claim 16**, Nelson teaches the received packet is received by a network device (col 5, ln 23-27); Simmon teaches placed initially in an adapter queue (col 18, ln 51-60).

**As to claim 18**, McKeeth teaches duplicating the packet comprises placing a duplicate copy of the packet in a duplicate queue (col 10, ln 3-10).

**As to claim 19**, McKeeth teaches an operating system dependent module converts the duplicated packet into an operating system compatible format prior to passing the duplicated packet to the operating system ( col 5, and ln 45-53)

10. Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Simmon (US 5867688 A) in view of Nelson (US 6882654 B1) McKeeth in view of (US 6260140 B1) and further in view of Lim (US 20050141424 A1).

**As to claim 17**, Simmon, Nelson and McKeeth do not teach media independent layer removes the received packet from the adapter queue. However, Lim teaches media independent layer removes the received packet from the adapter queue (the time – independent scheduling

method comprises the steps of: allocating credit for each of a plurality of queues; dequeuing a frame from a first queue within the plurality, para [0005], ln 5-10/ para [0036], ln 1-15).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Simmon, Nelson and McKeith with Lim to incorporate the feature of media independent layer removes the received packet from the adapter queue because this offers an efficient variant of deficit round robin to reduce the computation burden associated with conventional deficit round robin.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LeChi Truong whose telephone number is (571) 272-3767. The examiner can normally be reached on 8 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIP. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIP system, contact the Electronic Business Center (EBC) at 866-217-9197(toll-free).

/LeChi Truong/

Examiner, Art Unit 2194

LeChi Truong

September 18, 2008